



सत्यमेव जयते

रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर बी - ०२/२०२४ - CEN RRB - 02/2024



Test Date	24/12/2024
Test Time	12:45 PM - 2:15 PM
Subject	RRB Technicians Grade III

* Note

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

2. Chosen option on the right of the question indicates the option selected by the candidate.

Section : RRB Technicians Grade III

Q.1 Which of the following are parts of the male reproductive system?

- Ans
1. Uterus and Vagina
 2. Fallopian tube and penis
 3. Vas deferens and scrotum
 4. Vas deferens and oviduct

Q.2 In 2024, the Union Cabinet approved the continuation of three umbrella schemes merged into a unified central sector scheme under the Department of Science and Technology (DST). What is the name of this unified scheme?

- Ans
1. Science Bharat
 2. Vigyan Manthan
 3. Vigyan Dhara
 4. Technology for Tomorrow

Q.3 The gravitational force between two objects:

- Ans
1. only depends on the masses of the objects
 2. depends on the masses of the objects and the distance between them
 3. does not depend on either the masses of the objects or the distance between them
 4. only depends on the distance between the objects

Q.4 Swarna borrowed a sum of ₹12,000 from Jayshree at a rate of 10% per annum on compound interest, compounded annually. Find the total amount paid by Swarna after 2 years to clear all the dues.

- Ans
1. ₹14,520
 2. ₹14,890
 3. ₹14,620
 4. ₹14,980

Q.5

- Ans
1. Increase in temperature
 2. Increase in wind speed
 3. Increase in surface area
 4. Increase in humidity

Q.6 The rate of change of momentum is proportional to the applied unbalanced:

- Ans
1. force
 2. torque
 3. angular momentum
 4. moment of inertia

Q.7 Select the triad which follows the same pattern as that followed by the two triads given below. Both triads follow the same pattern.

TO-RM-PQ

WR-UP-ST

- Ans
1. SN-QL-OR
 2. XS-VQ-TW
 3. UP-SN-QR
 4. VQ-TO-RU

Q.8 The first law of motion is known as the:

- Ans
1. law of linear momentum
 2. law of inertia
 3. law of torque
 4. law of angular momentum

Q.9 The square root of 6084 is:

- Ans
1. 64
 2. 76
 3. 78
 4. 82

Q.10 _____ plays a crucial role in the long-term survival of species.

- Ans
1. Growth and development
 2. Fragmentation
 3. Variation
 4. Reproduction

Q.11

- Ans
- 1. 62
 - 2. 8
 - 3. -13
 - 4. 25

Q.12 B, C, D, E, F, G and K are sitting around a circular table, facing the centre. B sits third to the left of E. F sits second to the left of C. Only E sits between K and F. D is not an immediate neighbour of B.

- How many people sit between G and F when counted from the right of G?
- Ans
- 1. Two
 - 2. Three
 - 3. One
 - 4. Four

Q.13 On simple interest, a certain sum of money amounts to ₹1,400 in 2 years and to ₹2,000 in 5 years. Find the rate of interest per annum.

- Ans
- 1. 16.67%
 - 2. 11.11%
 - 3. 25%
 - 4. 20%

Q.14 As of 28 August 2024, how many years has the Pradhan Mantri Jan Dhan Yojana (PMJDY) completed since its launch?

- Ans
- 1. 12 years
 - 2. 10 years
 - 3. 8 years
 - 4. 5 years

Q.15 When a decomposition reaction of Limestone is carried out by heating, it is called _____.

- Ans
- 1. combination reaction
 - 2. thermal decomposition
 - 3. double displacement reaction
 - 4. exothermic reaction

Q.16 Based on the English alphabetical order, three of the following four letter-clusters are alike in a certain way and thus form a group. Which letter-cluster does not belong to that group?

- (Note: The odd one out is not based on the number of consonants/vowels or their position in the letter-cluster.)
- Ans
- 1. YFM
 - 2. GNU
 - 3. BGT
 - 4. KRY

Q.17

- Ans**
1. 8 units
 2. 4 units
 3. 6 units
 4. 9 units

Q.18 Which of the following plant cells have large membranous organelles that help in photosynthesis?

- Ans**
1. Nucleus
 2. Golgi body
 3. Lysosomes
 4. Plastids

Q.19 19 people are standing in a row facing North. Drisha is 17th from the right end while Vani is 9th from the left end. How many people are there between Drisha and Vani?

- Ans**
1. 8
 2. 2
 3. 3
 4. 5

Q.20 The sum of two numbers is 42 and one of them exceeds the other by 18. Find the greater number.

- Ans**
1. 32
 2. 24
 3. 28
 4. 30

Q.21 Which of the following statements is NOT correct?

- Ans**
1. The power of concave lens is negative.
 2. Larger the focal length, larger the power.
 3. Larger the focal length, smaller is the power.
 4. The power of convex lens is positive.

Q.22 Which of the following statements is/are correct related to eco-system?

- (i) Food we eat is digested by various enzymes in our body.
(ii) Enzyme is specific in their action.
(iii) Specific enzymes are needed for the breakdown of a particular substance.

- Ans**
1. Only (i) and (ii)
 2. Only (ii) and (iii)
 3. Only (i)
 4. (i), (ii) and (iii)

Q.23

Ans 1.

The components of a colloidal solution are only the dispersed phase and the dispersion medium.

2.

A colloid is big enough to scatter a beam of light passing through it and make its path visible.

3. The size of the particles of a colloid is very large.

4. A colloid is a heterogeneous mixture.

Q.24 The HCF of 16, 20 and 24 is:

Ans 1. 8

2. 4

3. 2

4. 6

Q.25 Two trains, 125 m and 165 m in length, respectively, are running in opposite directions, one at the rate of 80 km/h and the other at the rate of 65 km/h. In how many seconds will they be completely clear of each other from the moment they meet?

Ans 1. 7.2 sec

2. 7.5 sec

3. 6.5 sec

4. 6.8 sec

Q.26 What is the energy consumed when 1 watt of power is used for 1 hour?

Ans 1. 1 kilowatt hour

2. 1 watt hour

3. 6 kilowatt hour

4. 60 watt hour

Q.27 If 'A' stands for '×', 'B' stands for '+', 'C' stands for '÷' and 'D' stands for '−', what will come in place of the question mark '?' in the following equation?

$$12 \text{ D } 15 \text{ B } 3 \text{ C } 6 \text{ A } 5 = ?$$

Ans 1. 34

2. 36

3. 37

4. 31

Q.28 In the following number-pairs, the second number is obtained by applying certain mathematical operations to the first number. Which numbers should replace X and Y so that the pattern followed by the two numbers on the left side of :: is the same as that on the right side of ::?

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 - Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

$$X : 108 :: 9 : Y$$

Ans 1. $X = 16, Y = 145$

2. $X = 14, Y = 81$

3. $X = 12, Y = 81$

4.

Q.29

Ans

- 1.
- 2. boiling point
- 3. melting point
- 4. fusion point

Q.30

Which of the following options should come in place of the question mark (?) in the given series based on the English alphabetical order?

VYR, TWP, RUN, PSL, ?

Ans

- 1. NJQ
- 2. NQJ
- 3. JNQ
- 4. JQN

Q.31

The floor of an office has dimensions 5 m × 3 m. The cost of painting the walls is ₹8,640 at the rate of ₹60/m². Find the height of the room (in m).

Ans

- 1. 9.5
- 2. 8.5
- 3. 8
- 4. 9

Q.32

Identify the body part that does NOT contain involuntary muscles.

Ans

- 1. Lungs
- 2. Biceps
- 3. Stomach
- 4. Heart

Q.33

Select the correct statement related to sexual reproduction in flowering plants.

Ans

- 1. After fertilisation, ovary develops into a seed.
- 2. After fertilisation, ovule develops into fruit.
- 3.

On a suitable stigma pollen tubes grow out of the pollen grain and travel through the style and reach the ovary.

- 4. After fertilisation, an embryo is formed without any division in zygote.

Q.34

Ans

- 1. Father's father
- 2. Son
- 3. Brother
- 4. Father

Q.35 Who is the author of the book '2024: The Election that Surprised India'?

Ans

- 1. Rajdeep Sardesai
- 2. Prannoy Roy
- 3. Barkha Dutt
- 4. Arnab Goswami

Q.36 A constant force is acting on a body of mass 2 kg for 4 s and its velocity changes from 8 m/s to 12 m/s. The magnitude of the applied force is:

Ans

- 1. 3 N
- 2. 1 N
- 3. 2 N
- 4. 4 N

Q.37 The sides of a rectangle are in the ratio 5 : 3 and its perimeter is 112 cm. The area of this rectangle is:

Ans

- 1. 735 cm²
- 2. 595 cm²
- 3. 620 cm²
- 4. 695 cm²

Q.38 Which pair in the reactivity series represents the most and least reactive metal pairs?

Ans

- 1. Sodium and gold
- 2. Potassium and gold
- 3. Magnesium and gold
- 4. Calcium and gold

Q.39

Ans 1.

The negative and positive charges are not equal in magnitude. So, the atom as a whole is not electrically neutral.

2. An atom consists of a positively charged sphere and the electrons are embedded in it.

3.

The positive charge in the atom is spread all over like the red edible part of a watermelon, while the electrons are studded in the positively charged sphere, like the seeds in the watermelon.

4.

The negative and positive charges are equal in magnitude. So, the atom as a whole is electrically neutral.

Q.40 When an object of mass 'm' falls freely to the ground from a height 'h', at what point is the object's kinetic energy maximum?

Ans 1. At one-fourth way through the fall.

2. At halfway through the fall.

3. When it is about to hit the ground.

4. At the start of the fall.

Q.41 Which tissue is a distinctive feature of complex plants, one that has made possible their survival in the terrestrial environment?

Ans 1. Vascular tissue

2. Connective tissue

3. Epithelial tissue

4. Meristematic tissue

Q.42 Which of the following is a common drawback of using soap in hard water?

Ans 1. Soap loses its colour in hard water.

2. Soap creates too much lather.

3. Formation of soap scum due to the reaction with calcium and magnesium ions.

4. Soap dissolves too quickly in hard water.

Q.43 In which of the following phenomena is solid state directly transformed into gaseous state without changing into liquid state?

Ans 1. Deposition

2. Sublimation

3. Fusion

4. Solidification

Q.44 Which of the following parts of a plant does NOT take part in vegetative propagation?

Ans 1. Stem

2. Root

3. Flower

4. Leaves

Q.45

- Ans
1. VQ-TX
 2. ID-GK
 3. LG-JM
 4. RM-PT

Q.46 Which of the following is the rod-shaped structure found in the nucleus only when the cell is about to divide?

- Ans
1. Chromosomes
 2. Chromatin
 3. Mitochondria
 4. Lysosomes

Q.47 P, Q and R can fill a tank in 9 hours, 18 hours and 12 hours, respectively. They start the work i.e. filling the tank, with P working on hour 1, Q working on hour 2 and R working on hour 3, and then continuing with this cycle till the work is completed. How many hours will be needed to complete this work in this manner?

- Ans
1. 16 hours
 2. 11 hours
 3. 12 hours
 4. 15 hours

Q.48 Carbon monoxide reacts with hydrogen molecule to yield which of the following compounds?

- Ans
1. $\text{CH}_4(\text{g}) + \text{O}_2(\text{g})$
 2. $\text{C}(\text{S}) + \text{H}_2\text{O}(\text{l})$
 3. $\text{CH}_3\text{OH}(\text{l})$
 4. $\text{H}_2\text{O}(\text{l})$

Q.49 The mean proportion between the numbers a and b is 6. Which of the following pairs of numbers can be the values of a and b?

- Ans
1. 16 and 4
 2. 12 and 3
 3. 10 and 6
 4. 12 and 16

Q.50 TRIFED was established in 1987 under the Ministry of Tribal Affairs to:

- Ans
1. facilitate the marketing of tribal products and empower tribal people
 2. promote industrial development in tribal areas
 3. promote the education of tribal children
 4. provide financial aid to tribal individuals

Q.51 Which of the following statements is true with respect to regeneration?

- Ans
1. Regeneration and reproduction are the same process with different names in all organisms.
 2. Regeneration is not the same as reproduction.
 - 3.
 - 4.

Q.52

- Ans
- 1. 2310
 - 2. 1155
 - 3. 770
 - 4. 3465

Q.53 Which of the following is true regarding the principal axis of a spherical mirror?

- Ans
- 1. It is located at the edge of the mirror.
 - 2. It is normal to the mirror at its pole.
 - 3. It intersects the surface of the mirror at an angle of 45 degrees.
 - 4. It is parallel to the surface of the mirror.

Q.54 Which technique is useful for the separation of colloidal particles?

- Ans
- 1. Filtration technique
 - 2. Centrifugation technique
 - 3. Recrystallisation technique
 - 4. Sublimation technique

Q.55 Refer to the given series and answer the question that follows (all numbers are single-digit numbers only).

(Left) 5 5 4 1 6 2 7 3 8 7 4 6 1 4 9 7 3 9 9 8 4 2 4 3 0 2 8 3 7 3 (Right)

What is the sum of the 12th digit from the left and the 2nd digit from the right?

- Ans
- 1. 13
 - 2. 14
 - 3. 12
 - 4. 15

Q.56 There are two sections A and B of a class, consisting of 18 and 22 students, respectively. If the average weight of section A is 40 kg and that of section B is 35 kg, find the average weight of the whole class.

- Ans
- 1. 38.25 kg
 - 2. 37.25 kg
 - 3. 38.5 kg
 - 4. 37.5 kg

Q.57

Ans

- 1. Only conclusion I follows
- 2. Only conclusion II follows
- 3. Neither conclusion I nor II follows
- 4. Both conclusions I and II follow

Q.58 Which of the following terms is used for the impurities found in ores mining ?

Ans

- 1. Gangue
- 2. Roasting
- 3. Anode mud
- 4. Calcinations

Q.59 Study the given table and answer the question that follows.

The table depicts the kilograms of rice consumed by Ravi and Kapil in the month of June and July.

	Rice consumed in June (in kg)	Rice consumed in July (in kg)
Ravi	9	12
Kapil	8	10

What is the difference between the total amount of rice consumed by Ravi and Kapil in the month of July and June?

Ans

- 1. 5 kg
- 2. 3 kg
- 3. 7 kg
- 4. 6 kg

Q.60 Who won India's first-ever medal in the men's 50m Rifle 3-Positions final at the Paris 2024 Olympics?

Ans

- 1. Divyansh Singh Panwar
- 2. Arjun Babuta
- 3. Anish Bhanwala
- 4. Swapnil Kusale

Q.61 Who among the following launched ADITI 2.0 challenges and DISC 12 to foster innovation, entrepreneurship and ‘Aatmanirbharta’ in defence during DefConnect 4.0 on 7 October 2024?

Ans

- 1. Shri Amit Shah
- 2. Shri Narendra Modi
- 3. Shri Rajnath Singh
- 4. Shri Shaktikanta Das

Q.62

- Ans
1. Bi
 2. Si
 3. Mi
 4. Hi

Q.63 Identify the INCORRECT statement related to transportation in plants.

- a. Phloem helps in mineral and water absorption from the soil.
- b. Root hair increases the root's surface area for water and mineral absorption.
- c. Special vascular tissue in plants transports water and nutrients from the soil.
- d. Roots and leaves are joined by a continuous network of xylem channels.
- Ans
1. Only d
 2. c and d
 3. Only a
 4. b and c

Q.64 Deepthi Jeevanji set a new world record in the women's T20 400-m event at the:

- Ans
1. World Para Athletics Championships
 2. World Para Badminton Championships
 3. World Para Swimming Championships
 4. World Para Table Tennis Championships

Q.65 The atomic mass of an atom is primarily determined by the number of:

- Ans
1. neutrons
 2. electrons
 3. nucleons
 4. protons

Q.66 Refer to the given series and answer the question that follows (all numbers are single-digit numbers only).

(Left) 9 3 9 2 2 1 9 0 6 0 2 5 1 0 2 5 3 8 8 9 6 5 4 0 0 6 0 2 5 3 (Right)

What is the sum of the 3rd digit from the left and the 3rd digit from the right?

- Ans
1. 9
 2. 12
 3. 11
 4. 10

Q.67

- Ans
- 1. a and c
 - 2. b, d and e
 - 3. f
 - 4. c and d

Q.68 Refer to the given series and answer the question that follows (all numbers are single-digit numbers only, and all counting is to be done from left to right).

(Left) 5 7 8 9 6 7 7 5 8 9 2 5 5 9 5 5 9 5 4 6 7 2 8 3 5 8 3 9 7 9 (Right)

How many such even digits are there, each of which is immediately preceded by an even digit and also immediately followed by an odd digit?

- Ans
- 1. 3
 - 2. 0
 - 3. 2
 - 4. 1

Q.69 If $x : 6 :: 6 : y$, then the value of $\sqrt{xy}$ is:

- Ans
- 1. 6
 - 2. 16
 - 3. 4
 - 4. 8

Q.70 Select the triad which follows the same pattern as that followed by the two triads given below. Both triads follow the same pattern.

- LH-KG-JI
- VR-UQ-TS
- Ans
- 1. UP-SN-RQ
 - 2. TP-SO-RQ
 - 3. UP-SO-RT
 - 4. TP-SN-RT

Q.71

- Ans
- 1. 574
 - 2. 555
 - 3. 580
 - 4. 592

Q.72 If the price of rice is 30% less than that of wheat, then the price of wheat is approximately what percentage more than that of rice?

- Ans
- 1. 45%
 - 2. 40.65%
 - 3. 42.86%
 - 4. 37.5%

Q.73 Which of the following is correct about the relationship between power and focal length of a lens?

- Ans
- 1. Power is inversely proportional to square of the focal length.
 - 2. Power is inversely proportional to focal length.
 - 3. Power is directly proportional to focal length.
 - 4. Power is directly proportional to square of the focal length.

Q.74 If $a + \frac{1}{a} = 7$, then $a^2 + \frac{1}{a^2} = ?$

- Ans
- 1. 48
 - 2. 44
 - 3. 47
 - 4. 46

Q.75 The greatest natural number, which exactly divides the product of any four consecutive natural numbers is:

- Ans
- 1. 120
 - 2. 6
 - 3. 24
 - 4. 12

Q.76 Jimmy starts from point A and drives 6 km towards the South. He then takes two simultaneous left turns and drives 4 km and 6 km, respectively. He then takes a final right turn and drives 4 km to reach point B. How far (shortest distance) and towards which direction should he drive to reach Point A again? (All turns are 90 degrees only unless specified.)

- Ans
- 1. 6 km West
 - 2. 6 km South
 - 3. 4 km west
 - 4. 8 km West

Q.77 A large tanker can be filled by two pipes A and B in 60 minutes and 40 minutes, respectively. How many minutes will it take to fill the tanker from empty state, if B is used for half the time and A and B fill it together for the other half?

- Ans
- 1. 27.5 min
 - 2. 30 min
 - 3.
 - 4.

Q.78 In which of the following months in 2024 did the Sahitya Akademi organise a two-day Birth Centenary Symposium on 'Prabhjot Kaur and Colonel Narinder Pal Singh'?

- Ans**
- 1. September
 - 2. October
 - 3. March
 - 4. January

Q.79 Which of the following expressions is correct?

1. Mode – median = 2 (median – mean)

2. Median = $\frac{\text{Mode} + \text{median}}{2}$

3. Mode = 2 Median – mean

4. Mean = $\frac{2\text{Median} - \text{mode}}{2}$

- Ans**
- 1. 2
 - 2. 3
 - 3. 1
 - 4. 4

Q.80 Simplify the following expression:

$$\frac{\sin \theta}{1 - \cos \theta} + \frac{1 - \cos \theta}{\sin \theta}$$

- Ans**
- 1. $2 \sec \theta$
 - 2. $2 \operatorname{cosec} \theta$
 - 3. $2 \cos \theta$
 - 4. $2 \sin \theta$

Q.81 Read the given statements and conclusions carefully. You have to take the given statements to be true even if they seem to be at variance from commonly known facts and decide which conclusion(s) logically follow(s) from the given statements.

Statements:

No statue is a book.

No book is a copy.

Conclusions:

(I) No copy is a statue.

(II) Some books are statues.

- Ans**
- 1. Neither conclusion (I) nor (II) follows
 - 2. Only conclusion (I) follows
 - 3. Only conclusion (II) follows
 - 4. Both conclusions (I) and (II) follow

Q.82	
Ans	1. 2. ₹527 3. ₹537 4. ₹427
Q.83	Considering magnetic field lines, which of the following statements is NOT true?
Ans	1. The relative strength of magnetic field exists and can be shown by the degree of closeness of the field lines. 2. If magnetic field lines are parallel and equidistant, they represent zero field strength. 3. Magnetic field lines are closed curves. The direction of the magnetic field at a point is taken to be the direction 4. in which the north pole of a magnetic compass needle points.
Q.84	Who is the Goldman Environmental Prize winner of 2024?
Ans	1. Ajay Banga 2. Karpoori Thakur 3. Alok Shukla 4. Gary Ruvkun
Q.85	In a certain code language, 'whispering wind dances' is coded as 'snxk rkwg vzod', and 'wind dances gracefully' is coded as 'snxk vzod lwon'. What is the code for 'gracefully' in the given code language?
Ans	1. rkwg 2. lwon 3. snxk 4. vzod
Q.86	Which government passed the Aparajita Women and Child Bill, 2024, in September 2024?
Ans	1. Delhi 2. Punjab 3. Uttar Pradesh 4. West Bengal
Q.87	The two isotopic forms of chlorine, with masses 35 u and 37 u, are found in which of the following ratios in nature?
Ans	1. 3 : 1 2. 1 : 5 3. 1 : 1 4. 1 : 3

Q.88

Ans

1. I is the cause and II is its possible effect
2. Both I and II are independent causes
3. II is the cause and I is its possible effect
4. Both I and II are effects of independent causes

Q.89 Which of the following is/are correct about non-biodegradable substances?

- A. These substances are not broken down through biological processes.
- B. These substances persist in the environment for a short period.
- C. These substances may harm the various members of the ecosystem.

Ans

1. A, B and C
2. Only B
3. Both B and C
4. Both A and C

Q.90 Which of the following is NOT a prime number?

Ans

1. 71
2. 31
3. 91
4. 61

Q.91 Ishan is younger than Surya by 3 years. If the ages of Ishan and Surya are in the ratio 5 : 8, then how old is Surya?

Ans

1. 10 years
2. 7 years
3. 8 years
4. 5 years

Q.92 How many types of endoplasmic reticulum are there in cells?

Ans

1. Five
2. Three
3. Four
4. Two

Q.93

- Ans
- Two
 - Four
 - Three
 - One

Q.94 In the following number-pairs, the second number is obtained by applying certain mathematical operations to the first number. Which numbers should replace X and Y so that the pattern followed by the two numbers on the left side of :: is the same as that on the right side of ::?

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 - Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

X : 116 :: 16 : Y

- Ans
- X = 13, Y = 145
 - X = 11, Y = 143
 - X = 13, Y = 143
 - X = 13, Y = 144

Q.95 Suppose a number of rays parallel to the principal axis are falling on a concave mirror, then all the reflected rays will intersect:

- Ans
- at the principal focus
 - in between the pole and infinity
 - at the pole
 - at infinity

Q.96 An object of height 30 cm is placed in front of a concave lens and an image of height 10 cm is formed. The magnification of the lens is:

- Ans
- 20
 - 1/3
 - 20
 - 3

Q.97 The work done (in Joule) by a constant force of 10 N on an object that is displaced by an amount D meter in the direction of the force is:

- Ans
- 0
 - 10D
 - +10D
 - D

Q.98 Amita's income in 2019 was ₹21,000. She gets an increment of 10% every year. What was her income in 2021?

- Ans
- ₹29,100
 - ₹26,530
 - ₹25,410
 -

Q.99

Ans

- 1.
- 2. Loss, ₹123
- 3. Loss, ₹100
- 4. Profit, ₹100

Q.100 Which of the following options should come in place of the question mark (?) in the given series based on the English alphabetical order?

DZM, GYL, JXK, MWJ, ?

Ans

- 1. OVI
- 2. ORI
- 3. RVI
- 4. PVI